

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number
WO 2005/055229 A1

(51) International Patent Classification⁷: G11B 20/10, 20/14, H03M 5/14, 13/41, G11B 7/007, 7/005

Eindhoven (NL). IMMINK, Albert, H., J. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). CONWAY, Thomas [IE/IE]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(21) International Application Number:
PCT/IB2004/052472

(74) Agents: UITTENBOGAARD, Frank et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(22) International Filing Date:
18 November 2004 (18.11.2004)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language:
English

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

(26) Publication Language:
English

[Continued on next page]

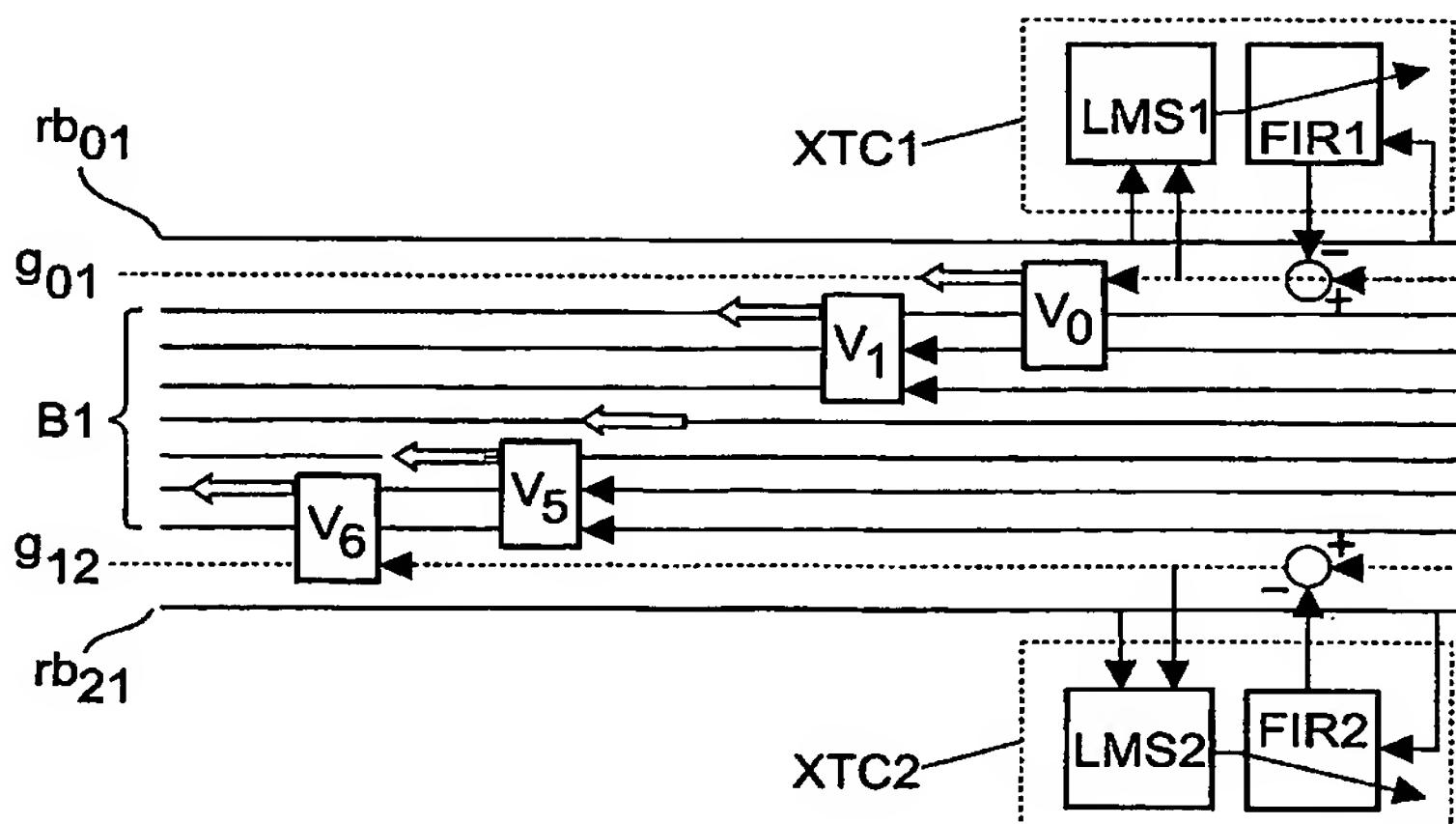
(30) Priority Data:
03104526.3 3 December 2003 (03.12.2003) EP

(71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): COENE, Willem, M., J., M. [BE/NL]; c/o Prof. Holstlaan 6, NL-5656 AA

(54) Title: SYMBOL DETECTION APPARATUS AND METHOD FOR TWO-DIMENSIONAL CHANNEL DATA STREAM WITH CROSS-TALK CANCELLATION



(57) Abstract: The present invention relates to a symbol detection apparatus for detecting the symbol values of a two-dimensional channel data stream recorded on a record carrier, said channel data stream comprising a set of contiguous symbol strips (B) of symbol rows (r) onedimensionally evolving along a first direction and being aligned with each other along a second direction, said two directions constituting a two-dimensional lattice of symbol positions. In order to avoid a substantial loss in detection performance at the edges of a 2D symbol strip in a 2D format, a symbol detector apparatus is proposed comprising: a cross-talk cancellation unit (XTC) for cancellation of radial inter-symbol interference, also known as cross-talk or inter-track interference, present in the first adjacent symbol rows ($g_{01}, g_{02}; r_1, r_{N+2}$) of a symbol strip (B1) from the next but one adjacent symbol row ($rb_{01}, rb_{02}; r_0, r_{N+3}$) of said symbol strip (B1) by applying for each first adjacent symbol row ($g_{01}, g_{02}; r_1, r_{N+2}$) a cross-talk cancellation between a first adjacent symbol row ($g_{01}, g_{02}; r_1, r_{N+2}$) and its neighboring symbol row ($rb_{01}, rb_{02}; r_0, r_{N+3}$) not belonging to said symbol strip (B1), and a 2D symbol detector (V) for symbol detection of the symbols of said symbol strip (B1) together with said first adjacent symbol rows ($g_{01}, g_{02}; r_1, r_{N+2}$).

WO 2005/055229 A1



FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*